

EXPRESS MAIL LABEL NO. EM472095216US

PATENT APPLICATION

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for

**SYSTEM AND METHOD FOR CARRYING OUT
AND MONITORING BIOLOGICAL PROCESSES**

PROGRAMMING CODE APPENDIX A

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NEW
1 GOTO 60:REM ***I/O stepper (I=$(0), O=z(72)) ***
2 IF (XBY(65507).AND.64)=0 THEN Z(0)=XBY(65506) : GOTO 3
3 DO : WHILE (XBY(65507).AND.128)=128
4 I=0 : DO : I=I+1 : XBY(65506)=ASC($(0),I)
5 WHILE ASC(S(0),I)<>13 : RETURN
6 DO : WHILE (XBY(65507).AND.64)=64
7 I=0 : DO : Z(I)=XBY(65506)
8 I=I-1 : UNTIL Z(I)=32 : RETURN
9

10 REM ***error check***
11 IF TX<0 THEN TX=0
12 RETURN
13 IF TX<-251 THEN TX=-251
14 RETURN
15 IF TX>251 THEN TX=251
16 RETURN

17 GOSUB 50:TP1=TP:T1=TIME
18 DO:UNTIL TIME>T1+.2
19 GOSUB 50:TP2=TP:T2=TIME
20 SL=(TP2-TP1)/(T2-T1):IF SL<>0 THEN IT=(TG-TP2)/SL
21 PRINT USING(##.##), "SL=", SL, "IT=", IT, "AT TEMP=", TP2
22 IF IT>1 GOTO 10
23 RETURN

24 REM ***temperature measurement***
25 E=XBY(65504):F=XBY(65505):G=XBY(65504):TP=(F*256+G+300)/38.3: RETURN

26 CLEAR : STRING 150,72 : DIM Z(72)
27 DTEMP=95:DTIME=1:DS=10
28 ATEMP=60:ATIM=1:AS=20
29 ETTEMP=74:ETIM=15:ES=1:CYLE=100
30 PRINT USING(##), "1", TAB(20), "TEMP", TAB(30), "TIME", TAB(40), "SLOPE"
31 PRINT "1) DENATURATION", TAB(20), DTEMP, TAB(30), DTIME, TAB(40), DS
32 PRINT "2) ANNEALING", TAB(20), ATEMP, TAB(30), ATIM, TAB(40), AS
33 PRINT "3) EXTENSION", TAB(20), ETTEMP, TAB(30), ETIM, TAB(40), ES
34 PRINT "4) CYCLES", "CYCLE":PRINT
35 INPUT "TYPE # TO CHANGE OR 0 IF OK (CHOICES ARE 0,1,2,3, OR 4)?",J
36 IF J=0 THEN GOTO 170
37 ON J GOSUB ,120,110,150,160
38 PRINT:GOTO 80
39 INPUT "ENTER DENATURATION Temp, Time, Slope: ",DTEMP,DTIM,DS
40 IF DTEMP>98 GOTO 130
41 RETURN
42 INPUT "ENTER ANNEALING Temp, Time, Slope: ",ATEMP,ATIM,AS
43 IF ATEMP<0 GOTO 130
44 IF AS>21 GOTO 130
45 RETURN
46 INPUT "ENTER EXTENSION Temp, Time, Slope: ",ETTEMP,ETIM,ES:RETURN
47 INPUT "ENTER Number of Cycles:",CYCLE:RETURN
48 $(0)='msr1 500;sp1 200;hf1 2;rt1 1;esc': GOSUB 3 : GOSUB 7
49 FCR I=0 TO 10 : PRINT CHR(Z(I)), : NEXT I : PRINT

500 S(0)='gol nd;hf1 2;wfo =x..,s1':GOSUB 3: rem open
501 PRINT "WAIT FOR COOLING":XBY(65504)=3
502 DO : GOSUB 50 : UNTIL TP<45
503 PRINT "TEMP=",TP," LOAD SAMPLES AND THEN PRESS A KEY"
504 W=GET : IF W=0 GOTO 240

505 TMC=0:WS=0: CLOCK 0 : TIME=0 : DBY(71)=0 : CLOCK 1
506 S(0)='hf1 1;sp1 100;gol;wfo =x..,s1':GOSUB 3: REM CLOSE
507 FCR V=1 TO CYCLE
508 PRINT "D", : TG=DTEMP:XBY(65509)=4:IF V=1 THEN TG=DTEMP+(DS/4)
509
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320     WS=(DS*10+WS*9)/10:TX=INT(WS+0.5):GOSUB 15
325     XBY(65508)=IX:GOSUB 50:IF TP>TG GOTO 340
330     IF TX<>DS*10 GOTO 320
333     GOSUB 30
335     GOSUB 50:IF TP<TG GOTO 335
340     TG=DTEMP:EE=TIME
345     WS=(5*WS+10*(TG-TP))/7:TX=INT(WS+0.5)
350     IF TG=0 THEN GOSUB 25:XBY(65508)=IX:XBY(65509)=4
353     IF TX<0 THEN GOSUB 20:XBY(65508)=0:XBY(65509)=4-TX
360     IF V=1 THEN IF DTIM>5*(TIME-EE) GOTO 380
370     IF DTIM<(TIME-EE) GOTO 500
380     GOSUB 50 : GOTO 345

500     PRINT "A":XBY(65508)=0:TX=ATEMP
505     S(0)="spl 200;gol nd;hfi 2;wfo =.x..;s1":GOSUB 3:      rem open
510     XBY(65509)=AS*10
515     GOSUB 30
520     EE=TIME:WS=-AS*10
525     WS=(4*WS+20*(TG-TP))/5:TX=INT(WS+0.5)
530     IF TX>0 THEN GOSUB 25:XBY(65508)=IX:XBY(65509)=4
535     IF TX<0 THEN GOSUB 20:XBY(65508)=0:XBY(65509)=4-TX
540     IF ATIM>1*(TIME-EE) GOTO 925
545     GOSUB 50 : GOTO 513

550     PRINT "E ",:XBY(65509)=4:TX=ETEMP+1
555     S(C)="hfi 1;spl 50;gol:wfo ex...;s1":GOSUB 3:WS=0: REM CLOSE
560     WS=(5*WS+10*WS*9)/10:TX=INT(WS+0.5):GOSUB 15:GOSUB 25:XBY(65508)=IX
565     GOSUB 50:IF TP>TG-1 GOTO 970
570     IF TX<>EE*10 GOTO 935
575     GOSUB 50 : IF TP<TG-1 GOTO 950
580     EE=TIME
585     WS=(WS+5*(TG-TP))/2:TX=INT(WS+0.5)
590     IF TX>0 THEN GOSUB 25:XBY(65508)=IX:XBY(65509)=4
595     IF TX<0 THEN GOSUB 20:XBY(65508)=0:XBY(65509)=4-TX
600     IF DTIM<(TIME-EE) GOTO 1000
605     GOSUB 50 : GOTO 980
610     CTIM=TIME-TIMC : TIMC=TIME : PRINT "CYCLE=",V,"TIME=",CTIM
615     NEXT V

620     XBY(65508)=0:XBY(65509)=255
625     INPUT "STRAND REANNEALING (Y/N) ?":$1
630     IF ASC($1,1)=73 GOTO 1390
635     PRINT "STRAND REANNEALING IN PROCESS..."
640     TG=DTEMP:XBY(65509)=4
645     WS=(DS*10+WS*9)/10:TX=INT(WS+0.5):GOSUB 15
650     XBY(65508)=IX:GOSUB 50:IF TP>TG GOTO 1170
655     IF TX<>DS*10 GOTO 1120
660     GOSUB 30
665     GOSUB 50:IF TP<TG GOTO 1160
670     EE=TIME
675     WS=(11*WS+10*(TG-TP))/12:TX=INT(WS+0.5)
680     IF TX>0 THEN GOSUB 25:XBY(65508)=IX:XBY(65509)=4
685     IF TX<0 THEN GOSUB 20:XBY(65508)=0:XBY(65509)=4-TX
690     IF 5<(TIME-EE) GOTO 1200
695     GOSUB 50 : GOTO 1180
700     XBY(65508)=0:XBY(65509)=255:WS=0
705     DO:GOSUB 50:UNTIL TP<75

710     EE=TIME
715     WS=(WS+5*(75-TP))/2:TX=INT(WS+0.5)
720     IF TX>0 THEN GOSUB 25:XBY(65508)=IX:XBY(65509)=4
725     IF TX<0 THEN GOSUB 20:XBY(65508)=0:XBY(65509)=4-TX
730     IF 60<(TIME-EE) GOTO 1280
735     GOSUB 50 : GOTO 1230

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1280  XBY(65508)=0:XBY(65509)=255
1290  INPUT "ANOTHER RUN (Y/N) ? ",$(1)
1300  IF ASC$(1,1)=78 GOTO 2000
1400  PRINT:$(0)="gol nd;hfl 9;wfo =.x..;s1":GOSUB 3:GOTO 80
2000  $(0)="gol nd;hfl 9;wfo =.x..;s1":GOSUB 3:END
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